AMENDMENTS TO THE CLAIMS

Pursuant to 37 C.F.R. § 1.121 the following listing of claims will replace all prior versions, and listings, of claims in the application.

Claim 1 (currently amended): A radiographic X-ray device comprising:

a plurality of X-ray imaging systems each comprising an X-ray tube for radiating X-rays and an X-ray detector for detecting transmitted X-rays, which are arranged to face each other and are mounted on each end of a support arm;

an X-ray imaging system transport mechanism for transporting the X-ray imaging systems using a common coordinate system having a mechanical center of the device as a reference point;

a shape data registering means for each X-ray imaging system for registering external shape data of three dimensional models corresponding to three dimensional shapes of objects, wherein the models are in a voxel data tree format~~the X-ray imaging systems~~;

a positional relation detecting means for obtaining in real time information regarding positional relations of the X-ray imaging systems based on a current position of each X-ray imaging system and the external shape data of the three dimensional model; and

an imaging system transport control means for controlling the X-ray imaging system transport mechanism in accordance with the information regarding the positional relations of the X-ray imaging systems detected by the positional relation detecting means.

Claim 2 (original): A radiographic X-ray device of claim 1, wherein said X-ray imaging system transport mechanism is configured to change the current positions of the X-ray imaging systems by rotating or translating the support arm of each X-ray imaging system.

Claim 3 (original): A radiographic X-ray device of claim 1, wherein at least one of said X-ray imaging systems can change the arrangement of its X-ray tube and its X-ray detector on the supporting arm for fine tuning a mode of imaging process and to accompany a change in the external shape of said X-ray imaging system in accordance with said change in the arrangement of its X-ray tube and its X-ray detector; and said positional relation detecting means obtains the

information regarding the positional relations of the X-ray imaging systems in accordance with said change in the external shape of said X-ray imaging system.

Claim 4 (currently amended): A radiographic X-ray device of claim 1, further comprising:

a top ~~board~~ plate for carrying a subject being inspected, said top ~~board~~ plate configured to move in reference to the common coordinate system of the X-ray imaging systems having the mechanical center of the device as the reference point,

wherein said shape data registering means further registers shapes of three dimensional models corresponding to the top plate's external shape; and said positional relation detecting means obtains the information regarding positional relations between the X-ray imaging systems and the top plate based on their current positions and the external shape data of the three dimensional model so that the imaging system transport control means can control the X-ray imaging system transport mechanism in accordance with the information regarding the positional relation between the top plate and the X-ray imaging systems.

Claim 5 (previously presented): A radiographic X-ray device of claim 1, wherein said positional relation detecting means obtains the information regarding the positional relations of the X-ray imaging systems using an algorithm that judges whether there is any physical contact between the X-ray imaging systems.

Claim 6 (currently amended): A radiographic X-ray device of claim 1, wherein said positional relation detecting means obtains the information regarding the positional relations of the X-ray imaging systems using an algorithm that calculates the minimum distance between ~~the~~ the X-ray imaging systems.

Claim 7 (original): A radiographic X-ray device of claim 2, wherein at least one of said X-ray imaging systems can change the arrangement of its X-ray tube and its X-ray detector on the supporting arm for fine tuning a mode of imaging process and to accompany a change in the external shape of said X-ray imaging system in accordance with said change in the arrangement of

its X-ray tube and its X-ray detector; and said positional relation detecting means obtains the information regarding the positional relations of the X-ray imaging systems in accordance with said change in the external shape of said X-ray imaging system.

Claim 8 (currently amended): A radiographic X-ray device of claim 2, further comprising:

a top ~~board~~ plate for carrying a subject being inspected, said top ~~board~~ plate configured to move in reference to the common coordinate system of the X-ray imaging systems having the mechanical center of the device as the reference point,

wherein said shape data registering means further registers shapes of three dimensional models corresponding to the top plate's external shape; and said positional relation detecting means obtains the information regarding positional relations between the X-ray imaging systems and the top plate based on their current positions and the external shape data of the three dimensional model so that the imaging system transport control means can control the X-ray imaging system transport mechanism in accordance with the information regarding the positional relation between the top plate and the X-ray imaging systems.

Claim 9 (currently amended): A radiographic X-ray device of claim 3, further comprising:

a top ~~board~~ plate for carrying a subject being inspected, said top ~~board~~ plate configured to move in reference to the common coordinate system of the X-ray imaging systems having the mechanical center of the device as the reference point,

wherein said shape data registering means further registers shapes of three dimensional models corresponding to the top plate's external shape; and said positional relation detecting means obtains the information regarding positional relations between the X-ray imaging systems and the top plate based on their current positions and the external shape data of the three dimensional model so that the imaging system transport control means can control the X-ray imaging system transport mechanism in accordance with the information regarding the positional relation between the top plate and the X-ray imaging systems.

Claim 10 (previously presented): A radiographic X-ray device of claim 2, wherein said positional relation detecting means obtains the information regarding the positional relations of the X-ray imaging systems using an algorithm that judges whether there is any physical contact between the X-ray imaging systems.

Claim 11 (previously presented): A radiographic X-ray device of claim 3, wherein said positional relation detecting means obtains the information regarding the positional relations of the X-ray imaging systems using an algorithm that judges whether there is any physical contact between the X-ray imaging systems.

Claim 12 (previously presented): A radiographic X-ray device of claim 4, wherein said positional relation detecting means obtains the information regarding the positional relations of the X-ray imaging systems using an algorithm that judges whether there is any physical contact between the X-ray imaging systems.

Claim 13 (currently amended): A radiographic X-ray device of claim 2, wherein said positional relation detecting means obtains the information regarding the positional relations of the X-ray imaging systems using an algorithm that calculates the minimum distance between ~~the~~ the X-ray imaging systems.

Claim 14 (currently amended): A radiographic X-ray device of claim 3, wherein said positional relation detecting means obtains the information regarding the positional relations of the X-ray imaging systems using an algorithm that calculates the minimum distance between ~~the~~ the X-ray imaging systems.

Claim 15 (currently amended): A radiographic X-ray device of claim 4, wherein said positional relation detecting means obtains the information regarding the positional relations of the X-ray imaging systems using an algorithm that calculates the minimum distance between ~~the~~ the X-ray imaging systems.

Claim 16 (currently amended): A radiographic X-ray device of claim [[5]] 1, wherein said positional relation detecting means obtains the information regarding the positional relations of the X-ray imaging systems using an algorithm that calculates the minimum distance between the the X-ray imaging systems.

Claim 17 (currently amended): A radiographic X-ray device comprising:

an X-ray imaging system comprising an X-ray tube for radiating X-rays and an X-ray detector for detecting transmitted X-rays, which are arranged to face each other and are mounted on each end of a support arm;

an X-ray imaging system transport mechanism for transporting the X-ray imaging system using a coordinate system having a mechanical center of the device as a reference point;

a shape data registering means of the X-ray imaging system for registering external shape data of three dimensional models corresponding to three dimensional shapes of objects, wherein the models are in a voxel data tree format~~the X-ray imaging systems~~;

a positional relation detecting means for obtaining in real time information regarding positional relations of the X-ray imaging system based on a current position of the X-ray imaging system and the external shape data of the three dimensional model; and

an imaging system transport control means for controlling the X-ray imaging system transport mechanism in accordance with the information regarding the positional relations of the X-ray imaging system detected by the positional relation detecting means.

Claim 18 (currently amended): A radiographic X-ray device of claim 17, further comprising:

a top ~~board~~ plate for carrying a subject being inspected, said top ~~board~~ plate configured to move in reference to a common coordinate system of the X-ray imaging system having the mechanical center of the device as the reference point,

wherein said shape data registering means further registers shapes of three dimensional models corresponding to the top plate's external shape; and said positional relation detecting means obtains the information regarding positional relations between the X-ray imaging systems and the

top plate based on their current positions and the external shape data of the three dimensional model so that the imaging system transport control means can control the X-ray imaging system transport mechanism in accordance with the information regarding the positional relation between the top plate and the X-ray imaging system.

Claim 19 (currently amended): A radiographic X-ray device comprising:

an X-ray imaging system comprising an X-ray tube for radiating X-rays and an X-ray detector for detecting transmitted X-rays, which are arranged to face each other and are mounted on each end of a support arm;

an X-ray imaging system transport mechanism for transporting the X-ray imaging system using a coordinate system having a mechanical center of the device as a reference point;

a shape data registering means of the X-ray imaging system for registering external shape data of three dimensional models corresponding to three dimensional shapes of objects, wherein the models are in a voxel data tree format~~the X-ray imaging systems~~;

a positional relation detecting means for obtaining in real time information regarding positional relations of the X-ray imaging system based on a current position of the X-ray imaging system and the external shape data of the three dimensional model;

an imaging system transport control means for controlling the X-ray imaging system transport mechanism in accordance with the information regarding the positional relations of the X-ray imaging system detected by the positional relation detecting means; and

a top ~~board~~ plate for carrying a subject being inspected, said top ~~board~~ plate configured to move in reference to a common coordinate system of the X-ray imaging system having the mechanical center of the device as the reference point,

wherein said shape data registering means further registers shapes of three dimensional models corresponding to the top plate's external shape; and said positional relation detecting means obtains the information regarding positional relations between the X-ray imaging system and the top plate based on their current positions and the external shape data of the three dimensional model so that the imaging system transport control means can control the X-ray imaging system transport

mechanism in accordance with the information regarding the positional relation between the top plate and the X-ray imaging system.